

**Resource:** Recent Research Development – Disease & Research Project

**Course:** Gr. 11 Biology, University

**Unit:** Animals: Structure and Function

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## Big Ideas

## Learning Goals

### Overall Expectations

*E1. analyse the relationships between changing societal needs, technological advances, and our understanding of internal systems of humans*

*E3. demonstrate an understanding of animal anatomy and physiology, and describe disorders of the respiratory, circulatory, and digestive systems*

### Specific Expectations

*E1.1 evaluate the importance of various technologies, including Canadian contributions, to our understanding of internal body systems (e.g., endoscopes can be used to locate, diagnose, and surgically remove digestive system tumours; lasers can be used during surgery to destroy lung tumours; nuclear magnetic resonance (NMR) imaging can be used to diagnose injuries and cardiovascular disorders, such as aneurysms)*

*E2.1 assess how societal needs lead to scientific and technological developments related to internal systems (e.g., advances in dietary products; improved standards for transplanting organs)*

*E3.4 describe some disorders related to the respiratory, digestive, and circulatory systems (e.g., asthma, emphysema, ulcers, colitis, cardiac arrest, arteriosclerosis)*

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## Tasks:

**Each group (5 or 6) will work on one of the following recent research topics:**

- Tuberculosis – Then and Now (resistance, recent research developments, such as interferons, drug compliance research e.g., SMS technology)
- Cystic Fibrosis – Biotechnology advances (e.g., genetic diagnosis, genetic counselling, gene therapy)
- Asthma – (e.g., protein-based drugs, monoclonal antibodies)
- Influenza – (e.g., vaccines, yearly flu-shot?)
- Emphysema (e.g., smoking, air pollutants, etc.)
- Pulmonary Fibrosis – (e.g., breakthroughs in research?)
- Other?

You will complete each of the following tasks after investigating your topic with your group:

### Individually

Write two personal responses: the first one about your topic (overview, what you learned, what you are still wondering, predictions re: future research/developments?, etc.), and second one a reflective piece about your individual and group work experience/process (how you contributed, how your group members contributed, what went well/needed improvement, etc.).

### As a group

- Presentation on your topic and findings
- Discuss significance and context of your research development topic (biological and social impacts)
- Create a one-page handout outlining your main topic and findings for your peers